

MAGNE-HEAD

DATA BULLETIN



DBW SERIES

DIGITAL MAGNETIC TAPE HEADS

FEATURES:

- **TRACKS:** *Any format to 32 tracks per inch.*
- **UNIFORMITY:** *Track to track ± 1 db.*
- **GAP-to-GAP SPACING:** *Read-to-write gaps as close as .150 inches.*
- **GAP-to-GAP PARALLELISM:** *to within 100 microinches standard. Less than 100 microinches on request.*
- **MOUNTING:** *Any physical and mounting configuration.*
- **DESIGNED:** *To meet all applicable military specifications.*

The Magne-Head DBW Series is a family of digital read-after-write magnetic heads. The photograph above shows the industry standard 7 track head built to I.R.I.G. mechanical specifications. Other available track configurations range from 1 to 16 tracks per $\frac{1}{2}$ inch.

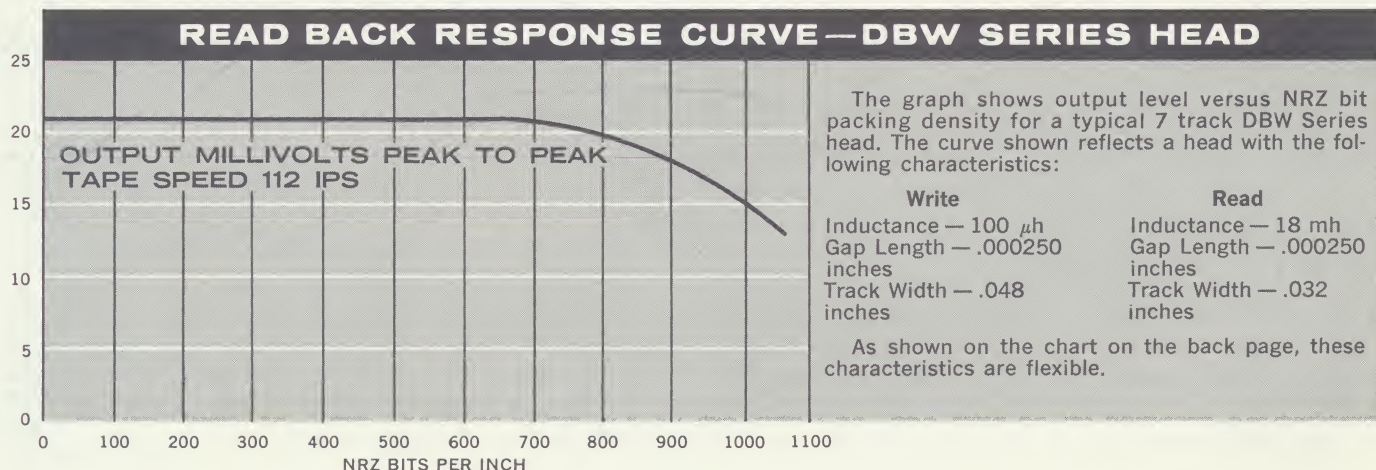
DBW Series heads are uniform from head to head as well as from track to track. Quality Control conforming to rigorous MIL-Q-9858 standards



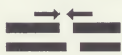
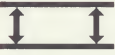
DBW-7 7 track read-after-write digital tape head

assures this uniformity—essential for quantity production.

Magne-Head also furnishes base plates and tape guides if desired, married to the head within optically controlled tolerances. (Azimuth deviation as low as $\pm \frac{1}{2}$ minute.) Flush face head construction coupled with spring loaded, surface hardened tape guides extends tape life and assures stability of head characteristics—through years of operation.



SPECIFICATIONS

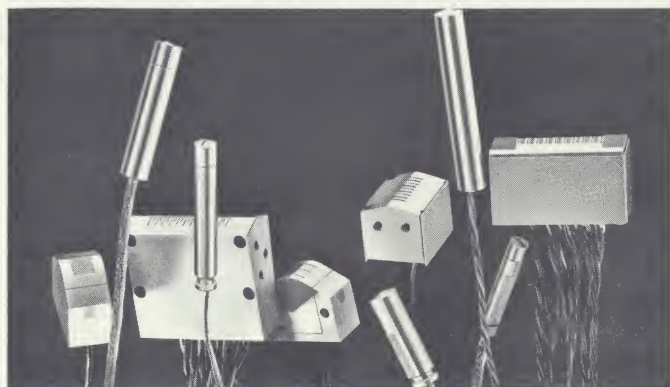
DBW SERIES TRACKS PER ½ INCH		3	4	5	6	7	8	9	10
TRACK WIDTH MAXIMUM INCHES	WRITE	.125	.090	.070	.060	.048	.044	.044	.032
	READ	.100	.074	.054	.044	.040	.040	.040	.026
INDUCTANCE MAXIMUM — MILLIHENRIES	READ	500	400	300	200	150	100	90	80
CROSS TALK MAXIMUM — db	READ TO READ	— 70	— 60	— 55	— 50	— 45	— 43	— 42	— 41
CROSS TALK MAXIMUM — db	WRITE TO READ .390 GAP TO GAP	— 50	— 50	— 50	— 50	— 50	— 50	— 50	— 50
READ TO WRITE GAP SPACING		 .150 INCHES MINIMUM							
GAP LENGTH		 20 MICROINCHES MINIMUM							
RADIUS		 .125 INCHES MINIMUM RECOMMENDED FOR REASONABLE HEAD WEAR							
GAP SCATTER		 ± 50 MICROINCHES — STANDARD ± 25 MICROINCHES — AVAILABLE							
AZIMUTH		 ± 1 MINUTE — STANDARD ± ½ MINUTE — AVAILABLE							
PARALLELISM	READ TO WRITE GAP	 100 MICROINCHES PER INCH							
MOUNTING		 ANY							

DBW SERIES DIGITAL MAGNETIC TAPE HEADS

Magne-Head is an industry leader in the design and manufacture of magnetic heads for all types of commercial and military applications. Continuing research enables Magne-Head to offer ideas and improvements in both performance standards and packaging design. Our engineers are available to work with you on any magnetic head problem—large or small—from prototype to production. Magne-Head has demonstrated capabilities in

design and production for such applications as a satellite-borne telemetry tape recorder, 56-channel in line read-after-write head for magnetic card random access computer memory, shipboard tactical data processing systems, aircraft audio pilot warning device, tape memory for stock exchange quotation device, and heads to operate in radio-active environments.

FOR THE FULL STORY: write or call Magne-Head—area code 213—772-2351/TWX 910-325-6203



- DRUM
- DISC
- DIGITAL TAPE
- ANALOG TAPE
- CHARACTER RECOGNITION
- MAGNETIC CARDS

MAGNE-HEAD

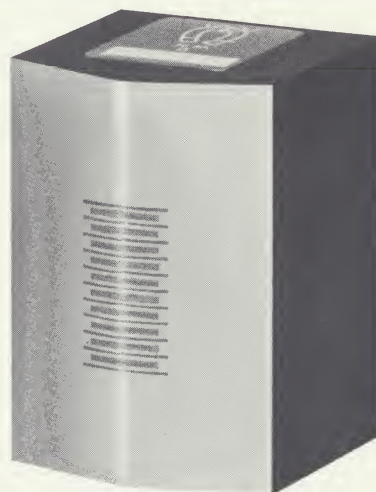
DATA BULLETIN



TB SERIES ANALOG MAGNETIC TAPE HEADS

FEATURES:

- **UNIFORMITY:** *Track to track $\pm \frac{1}{2}$ db.*
- **SHOCK RESISTANCE:** *Engineered to withstand 100 G's.*
- **OPERATING TEMPERATURE:** *From -55°F . to $+185^{\circ}\text{F}$.*
- **MOUNTING:** *Any physical and mounting configuration.*
- **TRACK DENSITY:** *To 30 per inch.*
- **DESIGNED:** *To meet all applicable military specifications.*

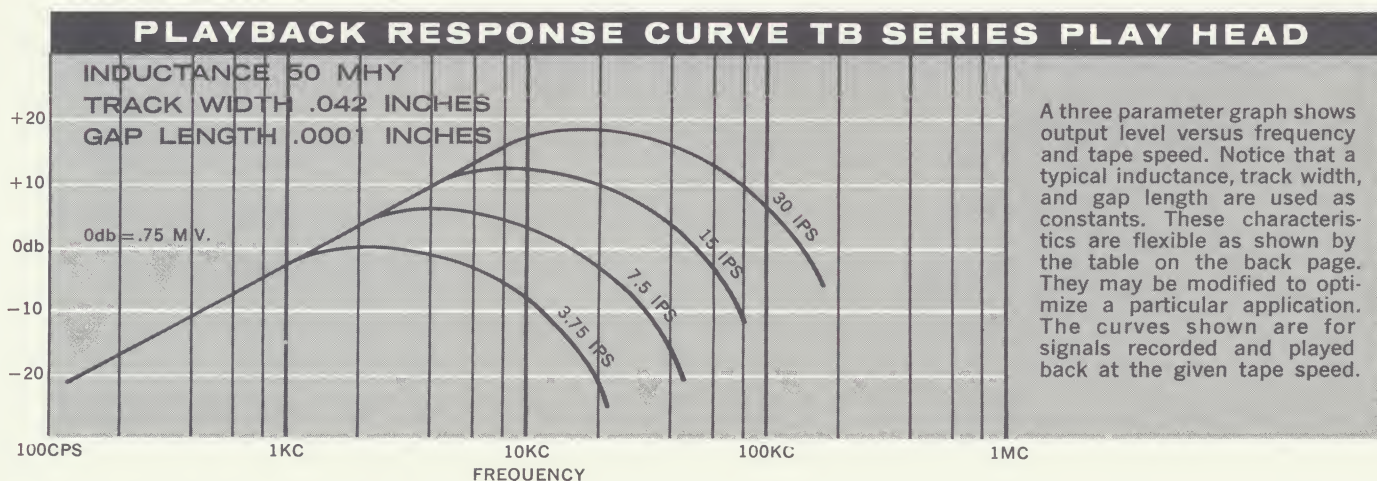


TB-10

* 10 tracks, $\frac{1}{2}$ " tape 150 mhy per track

Here is another in the series of Magnetic Analog Tape Heads designed and manufactured by the Magne-Head Division of General Instrument Corporation. The very tight track to track output uniformity available ($\pm \frac{1}{2}$ db) will permit switching of the same record or play amplifier from track to track without changing record or bias current, frequency compensation or pre-emphasis. The high

track density allows a very efficient use of tape recording area and the track density may be increased by interlacing two or more heads. All metal, flush face construction provides longer tape life. Magne-Head has delivered more than 250 types of tape heads to meet varied requirements of military, and commercial applications.



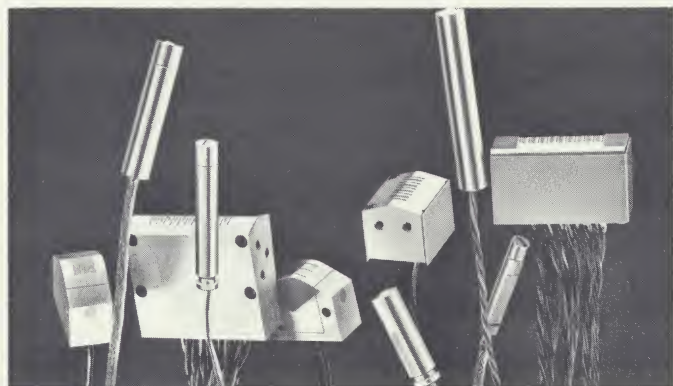
SPECIFICATIONS								
TB SERIES TRACK PER INCH	3	4	5	6	7	8	9	10
TRACK WIDTH MAXIMUM INCHES	.090	.090	.070	.054	.042	.032	.026	.020
TRACK PITCH INCHES	.140	.125	.100	.083	.070	.062	.056	.050
INDUCTANCE MAXIMUM-MILLIHENRIES	1000	800	600	400	300	200	150	150
CROSSTALK MAXIMUM—db	70	60	55	50	45	45	42	40
GAP LENGTH	 20 MICRO INCHES—MINIMUM							
RADIUS	 .125 INCHES—MINIMUM RECOMMENDED FOR REASONABLE HEAD WEAR							
GAP SCATTER	 ± 50 MICRO INCHES—STANDARD ± 25 MICRO INCHES—AVAILABLE							
AZIMUTH	 ± 1 MINUTE—STANDARD $\pm \frac{1}{2}$ MINUTE—AVAILABLE							
MOUNTING	 ANY							

TB SERIES ANALOG MAGNETIC TAPE HEADS

Magne-Head is a proven leader in the design and manufacture of magnetic heads for all types of commercial and military applications. A program of continual research enables Magne-Head to offer you the latest developments both in performance standards and packaging design. Our engineers are available to work with you on any magnetic head problem—large or small—from prototype to production. Magne-Head has demonstrated capa-

bilities in design and production for such applications as a satellite-borne telemetry tape recorder, 56-channel in line read-after-write head for magnetic card random access computer memory, ship-board tactical data processing systems, aircraft audio pilot warning device, tape memory for stock exchange quotation device, and heads to operate in radio-active environment.

FOR THE FULL STORY: write or call Magne-Head—area code 213—772-2351/TWX 910-325-6203



- DRUM
- DISC
- DIGITAL TAPE
- CHARACTER RECOGNITION
- MAGNETIC CARDS



DIGITAL MAGNETIC TAPE HEADS

FEATURES:

- **TRACKS:** *Any format to 32 tracks per inch.*
- **UNIFORMITY:** *Track to track ± 1 db.*
- **GAP-to-GAP SPACING:** *Read-to-write gaps as close as .150 inches.*
- **GAP-to-GAP PARALLELISM:** *to within*
- *100 microinches standard. Less than 100 microinches on request.*
- **MOUNTING:** *Any physical and mounting configuration.*
- **DESIGNED:** *To meet all applicable military specifications.*

The Magne-Head DEW Series is a family of digital read-after-write magnetic heads. The photograph above shows the industry standard 16 track head built to I.R.I.G. mechanical specifications. Other available track configurations range from 6 to 32 tracks per inch.

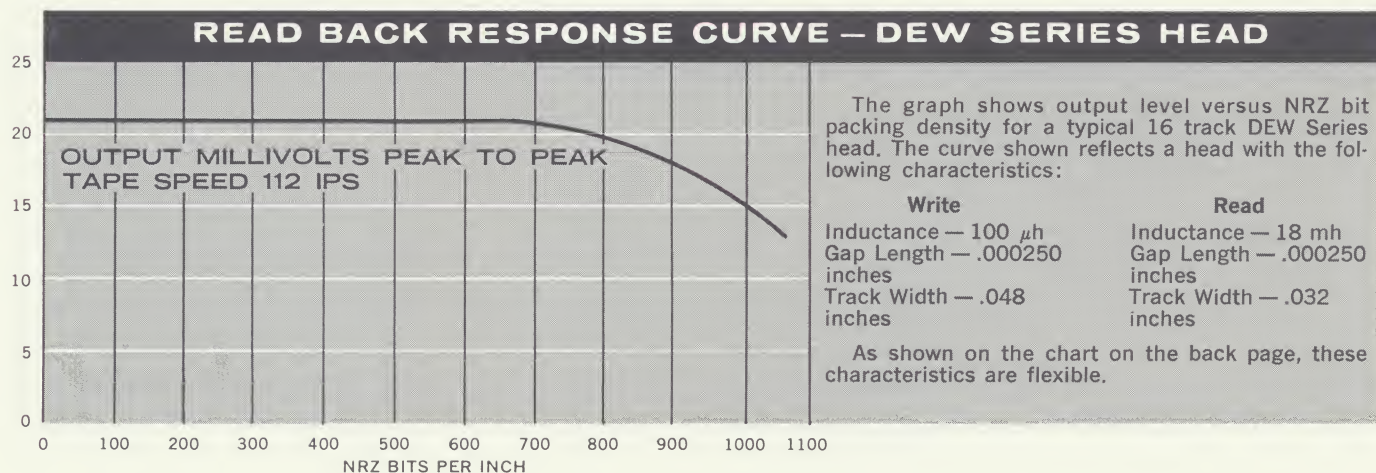
DEW Series heads are uniform from head to head as well as from track to track. Quality Control conforming to rigorous MIL-Q-9858 standards



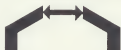
DEW-16 16 track read-after-write digital tape head

assures this uniformity—essential for quantity production.

Magne-Head also furnishes base plates and tape guides if desired, married to the head within optically controlled tolerances. (Azimuth deviation as low as $\pm 1/3$ minute.) Flush face head construction coupled with spring loaded, surface hardened tape guides extends tape life and assures stability of head characteristics—through years of operation.



SPECIFICATIONS

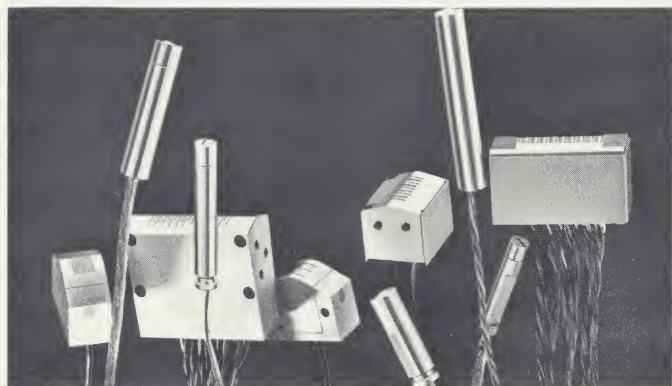
DEW SERIES TRACKS PER INCH		6	8	10	12	14	16	18	20
TRACK WIDTH MAXIMUM INCHES	WRITE	.125	.090	.070	.060	.048	.044	.044	.032
	READ	.100	.074	.054	.044	.040	.040	.040	.026
INDUCTANCE MAXIMUM — MILLIHENRIES	READ	500	400	300	200	150	100	90	80
CROSS TALK MAXIMUM — db	READ TO READ	—70	—60	—55	—50	—45	—43	—42	—41
CROSS TALK MAXIMUM — db	WRITE TO READ .390 GAP TO GAP	—50	—50	—50	—50	—50	—50	—50	—50
READ TO WRITE GAP SPACING		 .150 INCHES MINIMUM							
GAP LENGTH		 20 MICROINCHES MINIMUM							
RADIUS		 .125 INCHES MINIMUM RECOMMENDED FOR REASONABLE HEAD WEAR							
GAP SCATTER		 ±50 MICROINCHES — STANDARD ±25 MICROINCHES — AVAILABLE							
AZIMUTH		 ±1 MINUTE — STANDARD ± 1/3 MINUTE — AVAILABLE							
PARALLELISM	READ TO WRITE GAP	 100 MICROINCHES PER INCH							
MOUNTING		 ANY							

DEW SERIES DIGITAL MAGNETIC TAPE HEADS

Magne-Head is an industry leader in the design and manufacture of magnetic heads for all types of commercial and military applications. Continuing research enables Magne-Head to offer ideas and improvements in both performance standards and packaging design. Our engineers are available to work with you on any magnetic head problem—large or small—from prototype to production. Magne-Head has demonstrated capabilities in

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FOR THE FULL STORY: write or call Magne-Head—area code 213—772-2351/TWX 910-325-6203



- DRUM
- DISC
- DIGITAL TAPE
- ANALOG TAPE
- CHARACTER RECOGNITION
- MAGNETIC CARDS

MAGNETIC HEAD DESIGN SHEET

APPLICATION: DRUM _____ TAPE _____ CARD _____

MECHANICAL SPECIFICATIONS

RECORDING MEDIUM SPEED _____ (IPS)
RECORDING MEDIUM TYPE _____
TRACK WIDTH _____
NUMBER OF TRACKS _____ PER _____ (INCH)
GAP LENGTH _____
LEADS PER TRACK _____ SHIELDED _____

ELECTRICAL SPECIFICATIONS

INDUCTANCE _____ mH
WRITE CURRENT _____ mA
BIAS CURRENT _____ mA
RECORD FREQ. _____
BIAS FREQ. _____
READ SIGNAL _____ MIN.

REMARKS: — ADDITIONAL REQUIREMENTS — OUTLINE SKETCH — (CONTINUE ON BLANK SHEET IF REQUIRED)

APPLICABLE PRINT NO. _____ AND/OR SPECIFICATION _____ ATTACHED
COMPANY _____ PLANT _____ PHONE NO. _____
SUBMITTED BY _____ DEPT. _____ PHONE EXT. _____

MAGNE-HEAD DIV. GENERAL INSTRUMENT CORP.

13040 SO. CERISE AVENUE • HAWTHORNE, CALIF.

772-2351 679-3377

MECHANICAL SPECIFICATION FOR MHTB-7

7 CHANNEL IBM COMPATIBLE

READ AFTER WRITE HEAD

800 BPI NRZI

Write Head

1. Number of tracks	7
2. Tape Width:	1/2"
3. Track Width:	.048 + .002 - .002
4. Track to track spacing:	.070 $\pm$.001
5. Write gap length:	.0005"
6. Gap alignment:	.00025
7. Azimuth & tilt	$\pm$ 0° 1'
8. Gap depths (finished)	.015"
9. Write gap to read gap	.250 $\pm$.002
10. Finish (tape contact area)	8 micro inches
11. Tape angle of approach	8° - 12°

Read Head

1. Number of tracks:	7
2. Tape width:	1/2"
3. Track width:	.029 + .002 - .002
4. Track to track spacing:	.070 $\pm$.001
5. Read gap length:	.00020
6. Gap alignment:	.000250
7. Azimuth & tilt:	$\pm$ 0° 1'
8. Gap depth	.015"
9. Tape angle of approach	8° - 12°

ELECTRICAL SPECIFICATION FOR MHTB-7

7 CHANNEL IBM COMPATIBLE

READ AFTER WRITE HEAD

800 BPI NRZI

Write Head:

- | | | |
|----|----------------|---------------------------|
| 1. | Inductance: | Specified by Customer |
| 2. | Write Current: | Specified by Customer |
| 3. | Rise Time: | Less than 4 micro seconds |
| 4. | Fall Time: | . 1.0 micro seconds |

Read Head:

- | | | |
|----|---------------------------------------|---|
| 1. | Inductance | Specified by Customer |
| 2. | Output | 15 - 30 MV @ 800 BPI
Final value, function of
read inductance |
| 3. | Pulse Width:
Amplitude level @ 25% | 25 micro seconds or better
@ 20 BPI |
| 4. | Cross Talk:
Write to Read | -26 DB |
| 5. | Read Crosstalk: | 3% of output maximum |

TAPE SPEED 75 IPS

TAPE: 3M 498

NOTE: Variations in the above specification available upon request.

MAGNE-HEAD
Division of General Instrument
Corporation
13040 S. Cerise Avenue
Hawthorne, California

RJM:ns
3/21/66

MECHANICAL SPECIFICATION FOR MHTB-7

7 CHANNEL IBM COMPATIBLE

READ AFTER WRITE HEAD

800 BPI NRZI

Write Head

1. Number of tracks	7
2. Tape Width:	1/2"
3. Track Width:	.048 + .002 - .002
4. Track to track spacing:	.070 $\pm$.001
5. Write gap length:	.0005"
6. Gap alignment:	.00025
7. Azimuth & tilt	$\pm$ 0° 1'
8. Gap depths (finished)	.015"
9. Write gap to read gap	.250 $\pm$.002
10. Finish (tape contact area)	8 micro inches
11. Tape angle of approach	8° - 12°

Read Head

1. Number of tracks:	7
2. Tape width:	1/2"
3. Track width:	.029 + .002 - .002
4. Track to track spacing:	.070 $\pm$.001
5. Read gap length:	.00020
6. Gap alignment:	.000250
7. Azimuth & tilt:	$\pm$ 0° 1'
8. Gap depth	.015"
9. Tape angle of approach	8° - 12°

ELECTRICAL SPECIFICATION FOR MHTB-7

7 CHANNEL IBM COMPATIBLE

READ AFTER WRITE HEAD

800 BPI NRZI

Write Head:

- | | | |
|----|----------------|---------------------------|
| 1. | Inductance: | Specified by Customer |
| 2. | Write Current: | Specified by Customer |
| 3. | Rise Time: | Less than 4 micro seconds |
| 4. | Fall Time: | . 1.0 micro seconds |

Read Head:

- | | | |
|----|---------------------------------------|---|
| 1. | Inductance | Specified by Customer |
| 2. | Output | 15 - 30 MV @ 800 BPI
Final value, function of
read inductance |
| 3. | Pulse Width:
Amplitude level @ 25% | 25 micro seconds or better
@ 20 BPI |
| 4. | Cross Talk:
Write to Read | -26 DB |
| 5. | Read Crosstalk: | 3% of output maximum |

TAPE SPEED 75 IPS

TAPE: 3M 498

NOTE: Variations in the above specification available upon request.

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3/21/66

MAGNE-HEAD
Division of General Instrument
Corporation
13040 S. Cerise Avenue
Hawthorne, California

MECHANICAL SPECIFICATION FOR MHTB-9

9 CHANNEL IBM COMPATIBLE

READ AFTER WRITE HEAD

1600 BPI P.M. (3200 FCI)

Write Head

1.	Number of tracks:	9
2.	Tape Width:	1/2"
3.	Track Width:	.044 + .000 - .002
4.	Track to track spacing:	.055 $\pm$.001
5.	Write gap length:	.000090
6.	Gap alignment:	.0001
7.	Azimuth & tilt	$\pm$ 0° 1'
8.	Gap depths (finished)	.015"
9.	Write gap to read gap	.150 $\pm$.002
10.	Finish (tape contact area)	8 micro inches
11.	Tape angle of approach	7.5°

Read Head

1.	Number of tracks:	9
2.	Tape width:	1/2"
3.	Track width:	.040 + .000 - .002
4.	Track to track spacing:	.055 $\pm$.001
5.	Read gap length:	.000090
6.	Gap alignment:	.0001
7.	Azimuth & tilt:	$\pm$ 0° 1'
8.	Gap depth	.015"
9.	Tape angle of approach	7.5°

ELECTRICAL SPECIFICATION FOR MHTB-9

9 CHANNEL IBM COMPATIBLE

READ AFTER WRITE HEAD

1600 BPI P.M. (3200 FCI)

Write Head:

- | | |
|-------------------|---------------------------|
| 1. Inductance: | Specified by Customer |
| 2. Write Current: | Specified by Customer |
| 3. Rise Time: | Less than 2 micro seconds |
| 4. Fall Time: | .3 micro seconds |

Read Head:

- | | |
|--|---|
| 1. Inductance | Specified by Customer |
| 2. Output | 10-15 M.V. at 1600 BPI
Final value, function of
read inductance |
| 3. Pulse Width:
Amplitude level @ 25% | 20 micro seconds or better
@ 20 BPI |
| 4. Cross Talk:
Write to Read | -26 DB |
| 5. Read Crosstalk: | 3% of output maximum |

TAPE SPEED 75 IPS

TAPE: 3M 951

NOTE: Variations in the above specification available upon request.

RJM:ns
2/28/66

MAGNE-HEAD
Division of General Instrument
Corporation
13040 S. Cerise Avenue
Hawthorne, California

MECHANICAL SPECIFICATION FOR MHTB-9

9 CHANNEL IBM COMPATIBLE

READ AFTER WRITE HEAD

800 BPI NRZI

Write Head

1.	Number of tracks	9
2.	Tape Width:	1/2"
3.	Track Width:	.044 + .000 - .002
4.	Track to track spacing:	.055 $\pm$.001
5.	Write gap length:	.0005"
6.	Gap alignment:	.0001
7.	Azimuth & tilt	$\pm$ 0° 1'
8.	Gap depths (finished)	.015"
9.	Write gap to read gap	.150 $\pm$.002
10.	Finish (tape contact area)	8 micro inches
11.	Tape angle of approach	7.5°

Read Head

1.	Number of tracks:	9
2.	Tape width:	1/2"
3.	Track width:	.040 + .000 - .002
4.	Track to track spacing:	.055 $\pm$.001
5.	Read gap length:	.00020
6.	Gap alignment:	.0001
7.	Azimuth & tilt:	$\pm$ 0° 1'
8.	Gap depth	.015"
9.	Tape angle of approach	7.5°

ELECTRICAL SPECIFICATION FOR MHTB-9

9 CHANNEL IBM COMPATIBLE

READ AFTER WRITE HEAD

800 BPI NRZI

Write Head:

- | | |
|-------------------|---------------------------|
| 1. Inductance: | Specified by Customer |
| 2. Write Current: | Specified by Customer |
| 3. Rise Time: | Less than 2 micro seconds |
| 4. Fall Time: | .3 micro seconds |

Read Head:

- | | |
|--|---|
| 1. Inductance | Specified by Customer |
| 2. Output | 20-30 MV @ 800 BPI
Final value, function of
read inductance |
| 3. Pulse Width:
Amplitude level @ 25% | 25 micro seconds or better
@ 20 BPI |
| 4. Cross Talk:
Write to Read | -26 DB |
| 5. Read Crosstalk: | 3% of output maximum |

TAPE SPEED 75 IPS

TAPE: 3M 951

NOTE: Variations in the above specification available upon request.

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